MULTIMEDIA UNIVERSITY

STUDENT ID NO

MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 2, 2015 / 2016

TSE2101 / TCS 2411 – SOFTWARE ENGINEERING FUNDAMENTALS

(All Sections / Groups)

29 FEBRUARY 2016
9:00 A.M. – 11:00 A.M.
(2 Hours)

INSTRUCTION TO STUDENT

1. This Question paper consists of 2 Sections.
2. Answer **ALL** questions in Section A. This section carries 30 marks.
3. Answer any **TWO** out of THREE questions in Section B. This section carries 20 marks.
4. Please print all your answers in the Answer Booklet provided.

SECTION A (ANSWER ALL QUESTIONS)

QUESTION A1

MyUni is a local university with a student population of 8,000 students. The university have a medical centre where over 50 students receive medical services each day. The university has a new president who wishes to overhaul the existing medical support structure and modernise the facilities to improve the services. In order to plan for these changes, more information on which services are in fact used is required. The university wishes to develop a patient tracking system that traces each patient throughout their stay in campus for visits to the medical centre. Various analysis reports are also required in the new system.

Currently, students are identified by their Student ID numbers. Information about a patient is kept on a card. When a patient visits the centre for the first time, a new card will be created and his/her personal details will be verified with the admission office by a telephone call. For each visit, the following information are recorded on the card: room number, date, doctor's name, type of contact (i.e. consultation, treatment, follow-up check, routine check, emergency), diagnosis, medicine prescribed (i.e. name, brand, amount, dosage), and follow-up advise (yes/no).

All the cards are kept in a cabinet sorted according to the student ID number for easy retrieval of the cards.

You have been requested to propose a new computer-based medical system for this university.

(a) Identify at least three (3) main use cases for the medical system and draw the Use Case Diagram to represent them.

[4 marks]

(b) Select one of the use cases in Question A1(a) and draw the Sequence Diagram illustrating interaction between the user and the system.

[3 marks]

(c) Identify a main entity class in the requirements and draw a CRC card that represents this class.

[3 marks]

Continued .....

QUESTION A2

(a) Given the following activity precedence table for a software project.

Activity	Immediate Predecessor	Duration
A	-	6
B	-	9
C	A	3
D	B	5
E	A	9
F	C,D	4
G	C,D	10
H	E,F	3

Draw the Activity-on-Arrow (AOA) network diagram for this project.

[8 marks]

(b) Identify the critical path for this project.

[2 marks]

QUESTION A3

(a) Define Software Quality Assurance (SQA).

[2 marks]

(b) Describe the FIVE (5) Levels of SEI's Process Maturity Model.

[5 marks]

(c) Discuss THREE (3) differences between White Box Testing and Black Box Testing.

[3 marks]

Continued .....

SECTION B (ANSWER ANY 2 QUESTIONS)

QUESTION B1

(a) Explain the process of developing software using the Incremental Model. Draw the diagram to illustrate the process.

[6 marks]

(b) Describe TWO advantages of Agile Software Development.

[4 marks]

QUESTION B2

(a) Explain the following software design concepts:
- Separation of concerns
- Functional independence
- Stepwise refinement

[6 marks]

(b) Describe any TWO design goals when designing a Web application.

[4 marks]

QUESTION B3

(a) What is integration testing? Discuss the importance of regression testing in conducting integration testing of a software product.

[4 marks]

(b) Discuss how Software Configuration Management can lead to better software quality. Describe a tool that can be used for this purpose.

[6 marks]

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